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CLAIMS

We claim:

1. A foamed, continuous thermoplastic/cellulose fiber composite lineal extrusion made from an admixture,
5 comprising:
approximately 70% to 90% by weight styrene acrylonitrile (SAN) component;
approximately 5% to 25% by weight cellulosic material;
10 approximately 2% to 27% by weight acrylonitrile butadiene styrene (ABS) resin;
approximately 0.1% to 0.4% by weight lubricant; and,
approximately 0.4% to 3% by weight foaming agent.
- 15 2. The extrusion of Claim 1, wherein the styrene acrylonitrile component is an alloy of approximately 5% to 90% by weight medium molecular weight SAN, approximately 0% to 85% by weight high molecular weight SAN, and
20 approximately 1% to 5% by weight ultra high molecular weight SAN.
- 25 3. The extrusion of Claim 1, wherein the cellulosic material is wood fiber having a mesh size in the range of approximately 40 mesh to 200 mesh.
4. The extrusion of Claim 3, wherein the wood fiber has a mesh size of approximately 60 mesh.
- 30 5. The extrusion of Claim 1, wherein the lubricant is magnesium stearate.
6. The extrusion of Claim 1, wherein the extrusion has the following characteristics:
a heat deflection temperature rating of not less than
35 approximately 170 degrees F;
a flexural modulus of 307,000 pounds per square inch;

0 a coefficient of thermal expansion of not more than
approximately 0.0000333 inches per inch per degree F; and,
a thermal conductivity rating of not more than
approximately 0.6 British Thermal Unit inch per ft² hour
degree F.

5 7. The extrusion of Claim 6, wherein the extrusion
has a density of not more than approximately 0.60 grams
per cubic centimeter.

10 8. The extrusion of Claim 1, wherein the extrusion
has a substantially high aspect ratio in cross sectional
shape and a coextruded polyvinyl chloride (PVC) cap.

15 9. A method for making a foamed, continuous
thermoplastic/cellulose fiber composite lineal extrusion,
comprising the steps of:

preparing a pelletized feed stock having
approximately 70% to 90% by weight styrene acrylonitrile
(SAN) component, approximately 5% to 25% by weight
20 cellulosic material, and approximately 0.1% to 2.0% by
weight lubricant;

introducing approximately 6% to 90% by weight of the
pelletized feed stock into a mixing unit connected to a
conventional multi-screw extruder;

25 simultaneously adding to the mixing unit an
approximately 0% to 85% by weight medium molecular weight
(MMW) SAN component, a 0% to 85% by weight high molecular
weight (HMW) SAN component, a 1% to 5% by weight ultra-
high molecular weight (UHMW) SAN component, and a 2% to
30 27% by weight ABS resin component;

injecting a 0.4% to 3% by weight foaming agent into
the extruder downstream from the mixing unit and upstream
of a forming die connected to the extruder to form an
extrudate; and,

35 calibrating the extrudate.

0 10. The method of Claim 9, wherein the pelletized
feed stock SAN component is approximately 20% to 80% by
weight MMW SAN, and wherein the cellulosic material is
wood fiber having a mesh size in the range of 40 mesh to
200 mesh.

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11. The method of Claim 9, wherein the lubricant is
magnesium stearate.

10 12. The method of Claim 9, wherein the extrudate has
the following characteristics:

a heat deflection temperature rating of not less than
approximately 170 degrees F;

a flexural modulus of 307,000 pounds per square inch;

15 a coefficient of thermal expansion of not more than
approximately 0.0000333 inches per inch per degree F; and,

a thermal conductivity rating of not more than
approximately 0.6 British Thermal Unit inch per ft² hour
degree F.

20 13. A foamed, continuous thermoplastic/cellulose
fiber composite lineal extrusion product, made by the
following process:

preparing a pelletized feed stock having an
approximately 70% to 90% by weight styrene acrylonitrile
25 (SAN) component, approximately 5% to 25% by weight
cellulosic material, and approximately 0.1% to 2.0% by
weight lubricant;

introducing approximately 6% to 90% by weight of the
pelletized feed stock into a mixing unit connected to a
30 conventional multi-screw extruder;

simultaneously adding an approximately 0% to 85% by
weight medium molecular weight (MMW) SAN component, a 0% to
85% by weight high molecular weight (HMW) SAN component,
a 1% to 5% by weight ultra-high molecular weight (UHMW)
35 SAN component, and a 2% to 27% by weight acrylonitrile

0 butadiene styrene (ABS) resin component to the mixing
unit; and,

injecting a 0.4% to 3% by weight foaming agent into
the extruder downstream from the mixing unit and upstream
of a forming die connected to the extruder.

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14. The method of Claim 13, wherein the pelletized
feed stock SAN component is approximately 20% to 80% by
weight MMW SAN, and wherein the cellulosic material is
wood fiber having a mesh size in the range of 40 mesh to
10 200 mesh.

15. The method of Claim 13, wherein the lubricant is
magnesium stearate.

15 16. The method of Claim 13 wherein the extrusion has
a substantially high aspect ratio in cross sectional shape
and is coextruded with a polymer cap.

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